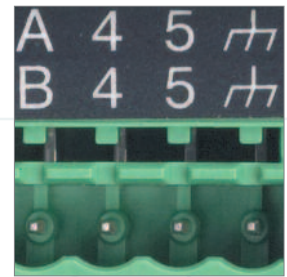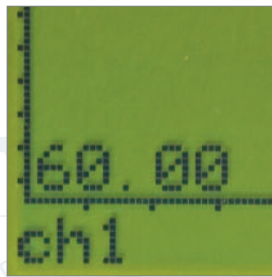# [!nlab] Instruments

Squirrel 2010

A powerful portable data logger

Overview

The Squirrel 2010 is a versatile, general purpose data logger, with 4 to 8 analogue input channels to measure current, voltage, resistance and temperature; plus 8 digital channels to automatically trigger or stop logging. An RS232 port is included, allowing connection to modems and other networking devices.

It is a compact, portable data logger which is also suitable for bench based and fixed installations. Easily programmed via the four integral push buttons and large graphical display and with a basic accuracy of 0.1%, the Squirrel 2010 is able to fulfil many routine data logging needs, including more demanding applications requiring up to 10 readings per second on one channel.

Key features

- » Compact, truly portable data logger
- » 4 to 8 universal analogue inputs (current, voltage, resistance, temperature) plus 8 digital inputs
- » 16 derived / calculated channels
- » 2 alarm outputs and 2 pulse counter inputs (1 at up to 64kHz, 1 at up to 100Hz)
- » Configured via large easy-to-read graphical display
- » 0.1% accuracy of reading
- » Store up to 14 million readings
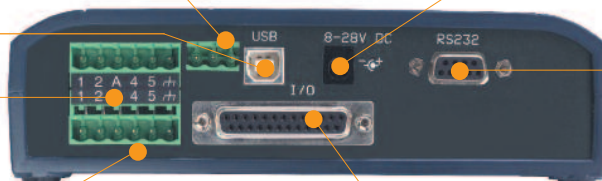- » Supplied with SquirrelView set-up / download software

Analogue inputs supported

- » Thermistors
- » Thermocouples
- » Voltage
- » Current
- » Resistance
- » 2-wire Pt100 / Pt1000

Three Year Guarantee — Grant

- » **Flexible**
- » **Very easy to use**
- » **Economical**
- » **Handheld, ergonomic design**
- » **USB connectivity**
- » **RS232 output for modem, Ethernet and Wi-Fi connection**

Power output for sensor excitation/external devices

USB connectivity for quick and easy PC communication

4 to 8 universal analogue inputs (4 differential, 8 single ended) for recording temperature, current, voltage and resistance

Easy to use, removable connector system

Power supply – internal alkaline batteries, external DC power supply or via USB

RS232 connectivity for peripherals communication e.g. Ethernet converter, wi-fi wireless converter or GSM modem

Range of trigger functions via 8 digital inputs; 2 pulse rate / counter inputs; 2 alarm / relay outputs

Display of real-time readings on the large clear graphical display

Icon driven software and large clear graphical display for easy logger set-up

Use the four integral push buttons and graphical display to configure the logger – no PC required for operation

Store up to 14 million readings in the Squirrel's onboard memory

Store up to 6 logger configurations in the on-board memory

Use the convenient free SquirrelView set-up and download software to export stored data to your application (see p. 28)

Applications

Environmental

Measurement

Remote outdoor applications

Capabilities

- » **Create a wide range of triggers and alarm outputs**
- » **Review real-time data on the integral display**
- » **Display readings in preferred engineering units e.g. Hz, Bar, Pascals, Nm etc.**
- » **Derive up to 16 calculated (virtual) channels from real input channels using mathematical functions**

Squirrel 2010 Technical Specifications

	Squirrel SQ2010
No. of Analogue Channels	8 single ended or 4 differential inputs
Working Environment	- 30 to 65°C, RH up to 95% (non-condensing)
Universal Input	Yes
Voltage Ranges; Differential and Single Ended	-6V to 25V, -0.6V to 2.4V, ±0.3V, -0.15V to 0.15V, -0.075V to 0.075V -6V to 12V, -6V to 6V, -3V to 3V, -0.6V to 1.2V, -0.6V to 0.6V
Common Mode	25V
Current Ranges, Differential (Requires external 10Ω shunt)	4 to 20mA, -30 to +30mA
Thermocouple Ranges; Differential and Single Ended	**K-type** -200 to 1372°C **R-type** -50 to 1768°C **B-type** 250 to 1820°C **T-type** -200 to 400°C **S-type** -50 to 1768°C **C-type** 0 to 2320°C **N-type** -200 to 1300°C **J-type** -200 to 1200°C **D-type** 0 to 2320°C
Resistance Ranges, all 2 wire	0 to 1250R, 0 to 5000Ω, 0 to 300000Ω, 0 to 20000Ω
Thermistor Ranges	**U & UU-type** -50 to 150°C **Y-type** -50 to 150°C **S-type** -30 to 150°C Customer specific thermistors
Pt100/1000, 2-wire	-200 to 850°C
Internal Reference Temperature	-50 to 150°C
Pulse Count Ranges	0 to 100Hz (1 input) 0 to 64kHz (1 input) 0 to 16000000 Count
Digital State/Event Ranges	8 state inputs or 1 x 8 bit binary
Digital/Alarm Outputs	2 open drain FETs, 18V, 0.1A
A/D Resolution	24 bit
Accuracy	0.1% of range + 0.1% of reading
Clock Resolution/Accuracy	1s/10ppm Normal Mode – each input sampled at a maximum rate of 1 reading per second. Double-speed (mains reject off) – one input can be sampled at 10 readings per second and all others are sampled at a maximum rate of 1 reading per second
No of Intervals	4
Data Scaling	Yes
Data Statistics	Yes from within SquirelView Plus PC software
Calculated Channels	Yes, up to 16
Memory Internal	16Mb (up to 14 million readings)
Display/Keypad	128*64 dot graphical display, 4 button keypad
Internal Battery	2 x C cells
Battery Life	Up to 5 days with continuous usage whilst sampling all channels once per second
External Power	Yes, 8 to 28V dc & USB when plugged in
Sensor Power Output	5V at 50mA, external 8-28V at 100mA (when connected)
Networking	Via RS232 to Ethernet adaptor or RS232 to Wi-Fi adaptor
Modem Support	Via RS232 modem (GSM Modem, part no. SQ20A802)
Actions & Triggers	Two alarm outputs, fully configurable actions and triggers
PC Setup	Yes, SquirrelView compatible
Front Panel Setup	Via 4 integral 4 keys. All essential functionality available via key pad e.g. channel configuration, start / stop logging etc. Other advanced functions e.g. calculated channels and channel descriptions are available via connection to a PC running SquirrelView
Stored Setups	6
Third Party Programming	As 20xx driver suite allows
Operating Temperature	-20 to 65°C
Dimensions (w x d x h)	175 mm x 135 mm x 55 mm, Weight 0.7 kg

Note: supplied with software, SQ2010 manual, USB cable, batteries and 4 current shunt resistors.